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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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SHELL OIL COMPANY			PARVINI, PEGAH	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/582,060

Applicant(s)

DEME, IMANTS

Examiner

Pegah Parvini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, and 7-35 is/are rejected.
- 7) ☒ Claim(s) 31-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

2. Claims 31-34 are objected to under 37 CFR 1.75(c) as being in improper form because claim 31 claims dependency upon both process claims, claims 11-19, and a composition claim, claim 20. See MPEP § 608.01(n). Accordingly, the claims 31-34 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation of 0.02% to 10% by weight of H₂S-suppressant and 60 to 100 wt% of sulfur; if 100% sulfur, then no H₂S-suppressant can be present.

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5. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is missing the proper claim dependency; said claim reads "...according to claim, wherein...". It is unclear to which claim said claim 3 is dependent upon. For the purpose of examination, however, claim 3 is considered to be dependent upon claim 1.

Claim Rejections - 35 USC § 103

6. The rejection of claims 1-5, and 7-9 under Title 35 USC 103(a) as being unpatentable over US Patent No. 4,756,763 to Etnyre in view of US Patent No. 3,960,585 to Gaw as generally set forth in the first Office Action mailed on May 16, 2007 is proper and stands.

7. Claims 10-19, 30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over AU 9715194A and in view of Etnyre and Gaw.

8. Regarding claims 10-11, 15-16, 30 and 35, AU 9715194A disclose that in the production of paving material, sand and gravel are heated at a temperature of 170°C to 375°C, then the bituminous material is heated to at least 170°C, and finally the two are mixed (Abstract).

The reference does not expressly disclose the use of sulfur and hydrogen sulfide suppressant in the mixture and is silent as to the amount of sulfur.

Etnyre discloses the use of sulfur in the asphalt because it strengthens the ultimate paving composition and raises the flow point of the composition (column 2, lines 5-25; column 5, lines 65-68; column 6, lines 1-5). Etnyre does not disclose the use of hydrogen sulfide suppressant. Etnyre teaches the use of calcium-based mineral filler such as calcium hydroxide to the mixture as well (column 6, lines 42-55).

Gaw teaches the use of hydrogen sulfide suppressant selected from the class consisting of free radical inhibitors, redox catalysts and mixtures thereof in preparing a cast sulfur-asphalt composition (column 1, lines 55-57). It, further, discloses the iodine, copper salts, copper oxides, iron salts, iron oxides, and cobalt salts and cobalt oxides as some of the conventional redox reagents used as catalysts (column 2, lines 13-17). Gaw, also, teaches that regarding hydrogen sulfite suppressant, sufficient amount is needed which would be effective to substantially suppress hydrogen sulfide evolution from the composition at temperatures up to 175°C and preferably below 150°C (column 1, lines 58-64; column 2, lines 54-60). In addition, Gaw discloses that the particular amount of hydrogen sulfide suppressant is added to the composition to give the desired effects at high temperatures and will vary with the specific sulfur-asphalt employed (column 2, lines 32-39). Furthermore, Gaw teaches that the quantity of suppressant will be only a minor proportion of the total sulfur-asphalt composition with amount as low as 0.05% by weight and not exceeding 0.5% by weight; however, Gaw discloses, that the use of larger amounts is by no means excluded (column 2, lines 40-50).

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9. It would have been obvious to a person of ordinary skill in the art to modify AU 9715194A in order to include the use of sulfur and H₂S-suppressant as that taught by Etnyre and Gaw motivated by the fact that Etnyre discloses that the use of sulfur in the asphalt composition strengthens the paving composition and raises the flow point of the composition; furthermore, Gaw discloses that because of environmental considerations, it is desirable to reduce the hydrogen sulfide concentrations by use of a H₂S-suppressant. In addition, it would have been obvious to have used an amount of hydrogen sulfide suppressant within the claimed range motivated by the fact that Gaw teaches that the amount used would an amount to provide a desired inhibiting effect at high temperatures and that it will only be a minor proportion.

It is noted that the sulfur pellets may be added in any one of the steps of (i) to (iii). It is further, noted that said claims recite the language of "comprising". Also, claim 10 recites the language of "consisting essentially of"; Gaw teaches the use of only 6% by weigh of asphalt (column 4, lines 37-47). The term "consisting essentially of" may include any unrecited ingredient which does not affect the basic and novel characteristics of the invention. In re Garnero, 162 U.S.P.Q. 221 (CCPA 1969); in re De Lajarte, 143 U.S.P.Q. 256 (CCPA 1964); In re Janakirama-Rao, 137 U.S.P.Q. 893 (CCPA 1963); Ex parte Davis, 80 U.S.P.Q. 448 (PO BdPatApp 1949).

It should be noted that Gaw asserts that the temperature reaches up to 175°C and is preferred to raise it up to 150°C (column 1, lines 62-63; column 2, lines 54-60). Thus, it would have been obvious to have used any appropriate temperature below this limit.

10. Regarding claims 12-13 and 17-18, Gaw teaches iron salts, cobalt oxides, and many more as some of the conventional redox reagents; the reference further discloses that iron chlorides are amongst the most preferred ones (column 1, lines 55-57; column 2, lines 6-10, 14-17, and 19-28).

11. Regarding claims 14 and 19, Etnyre teaches the use of calcium-based mineral filler such as calcium hydroxide in an amount of 25% by weight of the mixture; however, the reference, further, asserts that the quantity of mineral filler may be varied depending upon the grade of asphalt, the ratio of sulfur to the asphalt and the maximum temperature which the pellets must withstand without significant deformation (column 5, lines 57-61; column 6, lines 42-55).

12. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaw in view of Etnyre.

13. Regarding claims 20-24, Gaw teaches the use of hydrogen sulfide suppressant, in any suitable amount to give desired effects at high temperature, along with sulfur in a sulfur-asphalt composition; the reference, further, discloses the use of iron chloride, or cobalt salts or some other compounds as H₂S-suppressant (columns 1, and 2). The reference does not expressly disclose the use of filler.

Etnyre teaches the use of calcium-based mineral filler such as calcium hydroxide in any appropriate amount which depends on the grade of the asphalt, the ratio of the sulfur to the asphalt used, and the maximum temperature which the sulfur-asphalt pellets must withstand without significant deformation; Etnyre, also, disclose an amount of 25% by weight of the mineral filler (column 5, lines 56-62; column 6, lines 42-55). The reference, also, discloses forming the sulfur-asphalt-filler mixture into pellets to easily handle them (column 1, lines 11-18; column 2, lines 10-12, 24-26).

Thus, it would have been obvious to combined Gaw and Etnyre and to use a calcium-based mineral filler such as calcium hydroxide as that taught by Etnyre in the invention of Gaw motivated by the fact that the filler prevents the asphalts from stripping away in the presence of water when the pellets are subsequently heated and mixed with aggregate. Gaw and Etnyre are both from the same field of art. Furthermore, it is noted that the use of filler is recited as being optional in the independent claim 20.

Additionally, it would have been obvious to a person of ordinary skill in the art to modify Etnyre in order to include the hydrogen sulfide suppressant as that taught by Gaw motivated by the fact that because of environmental considerations, it is desirable to reduce the amount of H_2S which is produced as a result of the addition of sulfur to the asphalt composition. It should be noted that the addition of sulfur to asphalt improves the strength and other properties of the pavement mixture disclosed by Etnyre and raises the flow point to a temperature well above the temperature at which the raw asphalt will flow and conglomerate (column 3, lines 29-38).

With reference to the recitation of "consisting essentially of", it is noted that the amount of asphalt is only a small portion (Gaw; column 4, lines 37-46). The term "consisting essentially of" may include any unrecited ingredient which does not affect the basic and novel characteristics of the invention. In re Garnero, 162 U.S.P.Q. 221 (CCPA 1969); in re De Lajarte, 143 U.S.P.Q. 256 (CCPA 1964); In re Janakirama-Rao, 137 U.S.P.Q. 893 (CCPA 1963); Ex parte Davis, 80 U.S.P.Q. 448 (PO BdPatApp 1949).

14. Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Etnyre in view of Gaw.

15. Regarding claims 25-29, Etnyre teaches the use of calcium-based mineral filler such as calcium hydroxide in any appropriate amount which depends on the grade of the asphalt, the ratio of the sulfur to the asphalt used, and the maximum temperature which the sulfur-asphalt pellets must withstand without significant deformation; Etnyre, also, disclose an amount of 25% by weight of the mineral filler (column 5, lines 56-62; column 6, lines 42-55). The reference, also, discloses forming the sulfur-asphalt-filler mixture into pellets to easily handle them (column 1, lines 11-18; column 2, lines 10-12, 24-26). Etnyre does not expressly disclose the use of H₂S-suppressant.

Gaw teaches the use of hydrogen sulfide suppressant, in any suitable amount to give desired effects at high temperature, along with sulfur in a sulfur-asphalt composition; the reference, further, discloses the use of iron chloride, or cobalt salts or some other compounds as H₂S-suppressant (columns 1, and 2).

At the time of the invention, it would have been obvious to modify Etnyre in order to include a hydrogen sulfide suppressant as that taught by Gaw motivated by the fact that Gaw discloses that because of environmental considerations, it is desirable to reduce the hydrogen sulfide concentrations produced as a result of heating sulfur-asphalt compositions (column 1, lines 29-40).

Furthermore, both references, Gaw and Etnyre, are from the same field of art.

Response to Amendment

16. Applicants' amendment to claims 1, 7, and 9-10 in page 2-3, filed August 15, 2007 is acknowledged. However, the amendments are not sufficient to place the application in condition for allowance.

Response to Arguments

17. Applicant's arguments filed August 15, 2007 have been fully considered but they are not persuasive.

18. Applicants have argued that the pellets of sulfur do not further include a significant amount of bitumen or aggregate or both.

The examiner, respectfully, submits that the recitations of claims 1 and 7 reads as "comprising". Furthermore, regarding new claim 25, said claim is rejected under 35 103(a) over Etnyre in view of Gaw in which the combination of references disclose

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forming sulfur-asphalt and filler into pellets which would have been obvious to include H₂S-suppressant as set forth in details above.

19. Applicants have argued that the applicants' invention provides for a separate preparation of pellets that may be done remotely from the location or at least separately from the preparation of the paving mixture.

The examiner, respectfully, submits that said limitations are not recited in the instant claims. Additionally, the formation of pellets is obvious over the prior art as described in details above and in the first Office Action.

20. Applicant's arguments, see page 8, filed August 15, 2007, with respect to the British English spellings have been fully considered and are persuasive. The objection of specification has been withdrawn.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegah Parvini whose telephone number is 571-272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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